

CLAIMS

1           1. An isolated DNA fragment comprising a sequence of nucleotides that encodes a  
2 calcium channel, wherein the sequence of nucleotides is selected from sequences of nucleotides  
3 encoding a protein including the sequence of amino acids set forth in SEQ ID. No. 19, and  
4 sequences of nucleotides that hybridize under non-stringent conditions to DNA encoding a  
5 protein including the sequence set forth in SEQ ID No. 19.

1           2. The DNA fragment of Claim 1, wherein the sequence of nucleotides is selected from  
2 sequences of nucleotides encoding a protein including the sequence of amino acids set forth in  
3 SEQ ID. No. 18, and sequences of nucleotides that hybridize under non-stringent conditions to  
4 DNA encoding a protein including the sequence set forth in SEQ ID No. 18.

1           3. The DNA fragment of Claim 1, wherein the calcium channel is a human neuronal  
2 calcium channel.

1           4. A vertebrate expression vector containing the DNA fragment of Claim 1.

1           5. A vertebrate expression vector containing the DNA fragment of Claim 2.

1           6. A eukaryotic cell transiently or stably transformed with the vertebrate expression  
2 vector of Claim 4, said cell expressing the calcium channel encoded by the DNA fragment.

1           7. The eukaryotic cell of claim 6, wherein the cell is further transformed with and  
2 expresses an  $\alpha 2\delta$  or a  $\beta$  calcium channel subunit, or both.

1 8. A eukaryotic cell transiently or stably transformed with a heterologous DNA fragment  
2 according to Claim 1, said cell expressing the calcium channel encoded by the DNA fragment.

1 9. The eukaryotic cell of claim 8, wherein the cell is further transformed with and  
2 expresses an  $\alpha_2\delta$  or a  $\beta$  calcium channel subunit, or both.

1 10. A method for the production of the  $\alpha_{-11}$  protein of an animal cell calcium channel  
2 comprising, culturing the cell of Claim 6 under conditions whereby the DNA encoding the  
3 calcium channel subunit is expressed and the  $\alpha_{-11}$  subunit is produced.

1 11. A process for producing the eukaryotic cell that is transiently or stably transformed  
2 and expresses a calcium channel, comprising the step of introducing RNA or DNA having a  
3 sequence selected from among sequences that encode a protein including the sequence of amino  
4 acids set forth in SEQ ID. No. 19, and sequences of nucleotides that hybridize under non-  
5 stringent conditions to DNA encoding a protein including the sequence set forth in SEQ ID No.  
6 19 and RNA or DNA encoding an  $\alpha_2\delta$  or  $\beta$  calcium channel subunit into a cell.

1 12. A method of identifying compounds capable of acting as agonists or antagonists for  
2 the  $\alpha_{-11}$  calcium channel, comprising contacting a cell according to claim 4 with an agent to be  
3 tested, and evaluating the interaction, if any, between the agent to be tested and the calcium  
4 channel.

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PATENT APPLICATION

1 13. An isolated DNA fragment comprising a sequence of nucleotides that encodes a  
2 human calcium channel subunit, wherein the sequence of nucleotides is selected from sequences  
3 of nucleotides including the sequence set forth in SEQ ID No. 17.

1 14. An isolated DNA fragment having the sequence given by SEQ ID No. 19.

1 15. A method for mapping the distribution of calcium channel subunits within a tissue  
2 sample comprising the steps of exposing the tissue to a reagent comprising a directly or indirectly  
3 detectable label coupled to a DNA fragment comprising a sequence selected from among those  
4 sequences given by SEQ ID Nos. 13-20, and detecting reagent that has bound to the tissue.

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